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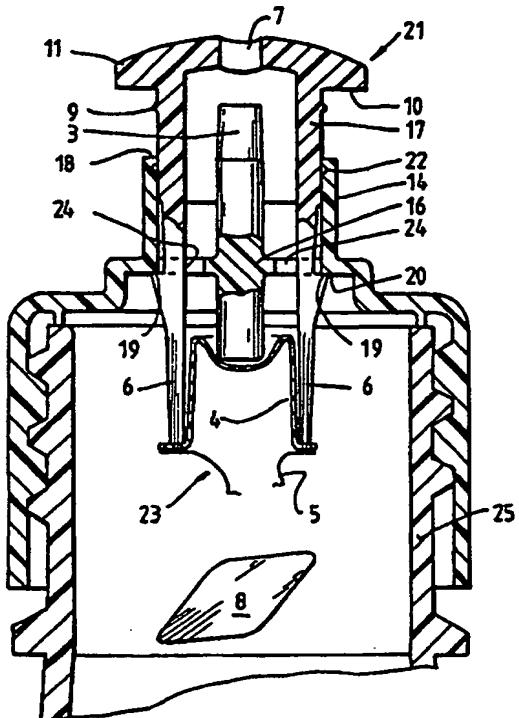
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(71)(72) Applicants and Inventors:	GARTNER, Bradley, Francis [AU/AU]; 36 Taunton Street, East Doncaster, VIC 3109 (AU). HANSEN, Rikard, Darrell [AU/AU]; 15 Coolabah Grove, Berwick, VIC 3806 (AU).		
(74) Agent:	STRICKLAND, R., J.; Griffith Hack, 509 St. Kilda Road, Melbourne, VIC 3004 (AU).		
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(54) Title: CLOSURE CAP HAVING BLISTER PACK RUPTURABLE UPON OPENING OF CAP

## (57) Abstract

A closure cap (21) having therein a blister pack (23) in which an additive, which may be a tablet (8), is retained to be released into the liquid contents of an associated bottle (25) simultaneously upon opening of the closure cap and the rupturing of said blister pack by part (3) of a closure member (21) and forming part of the closure cap, whereafter the contents of the container may be dispensed either through the closure cap or after removal of the closure cap.



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## 5 CLOSURE CAP HAVING BLISTER PACK RUPTURABLE UPON OPENING OF CAP

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15 Technical Field

The present invention relates to a closure cap for a drink container, and a drink container carrying such a closure cap.

20 The closure cap of the present invention is to be associated with a drink container in which a base liquid is received and into which an additive is to be dispensed. The additive, may be a vitamin and/or electrolyte supplement as may be consumed by a sportsperson, or an antacid or stomach settling compound, and either in liquid, powdered or

25 dissolvable tablet form.

The primary object of the invention is to retain the additive in the closure and isolate it from the base liquid until such time as the drink is to be consumed, at which time the additive is released into the base liquid.

30 Background Art

It is known to provide a closure cap for a container which allows two substances to be mixed to form a single composite product. Such containers are often used in dentistry or medicine to keep two reagents separate

35 until they are to be used. AU - 37210/89 discloses a cap with a push-button that releases an additive when pressed. The composite product is subsequently dispensed by

unscrewing the closure cap. US 4132308 discloses a screw cap which mixes two substances when the cap is rotated.

It is also known to provide drink containers which allow the combination of two ingredients. GB 2211479

5 discloses a device for storing mixed drinks where the ingredients are stored in two separate compartments separated by a partition which is ruptured by a punch prior to consumption. US 4399158 discloses a container in which an additive is secured within a holder which is held closed 10 by internal pressure until the can is opened at which time the additive is released into the beverage. AU 84745/82 discloses a dual compartment beverage container wherein the dividing diaphragm is ruptured by the interaction of a drinking straw with a cutting tool.

15 Disclosure Of The Invention

In accordance with the primary object of the invention a closure cap is provided having a compartment in which an additive is retained and adapted to be released into the liquid contents of an associated container

20 simultaneously upon opening of the closure cap, whereafter the contents of the container may be dispensed either through the closure cap or after removal of the closure cap.

One advantage of incorporating the means for 25 retaining the additive in the closure cap is that the device may be used in conjunction with a standard drink bottle, hence reducing production costs. A further advantage is that causing mixing and allowing dispensing may be achieved by the same action.

30 Preferably the closure cap has as its primary opening and closing means a closure means of the push-pull type. When the lid is moved into the open position the additive is released into the base liquid contents of the bottle. The closure means may then be returned to the 35 closed position allowing the bottle to be shaken to mix the additive with the base liquid without spillage whilst allowing for some of the contents to be consumed and the

remainder saved for consumption as required.

In a preferred embodiment of the invention the closure cap is used in conjunction with a carbonated or still colourless drink product contained in a clear bottle.

5 A tablet is retained within the closure cap which effervesces when released into the drink product. The tablet may typically contain colour, flavour, vitamin substitutes, non-prescription medication or a combination thereof, which are mixed with the base liquid of the drink

10 product by the effervescing of the tablet and by shaking the bottle. Also, there is the opportunity to keep the flavouring, colouring, vitamins or medicines separate from the drink until the moment of consumption hence allowing flavours, colours, vitamins or medicines which would

15 normally not keep for a long duration to be used, or alternatively to reduce the amount of preservative used in the drink product.

#### Brief Description Of The Drawings

20 One preferred embodiment of the invention will now be described with reference to the accompanying drawings, in which;

25 Figure 1 is a longitudinal cross-sectional view through the closure cap of this preferred embodiment of the invention and in a preliminary condition as applied to the neck of a drink container, such as a neck of a plastics or glass bottle,

30 Figure 2 is a longitudinal cross-sectional view of the closure cap of Figure 1, but in the process of actuation to release an additive into the base liquid contents of the bottle, and to allow dispensing or consumption of the liquid contents of the associated bottle, and

Figure 3 is an exploded perspective view of some of the components of the closure cap of Figures 1 and 2.

#### 35 Best Mode For Carrying Out The Invention

With reference to the drawings, in this preferred embodiment the closure cap comprises a screw cap 2; a

closure member 21; and a blister pack 23 containing a tablet 8. The screw cap 2 is adapted to be screwed onto the neck of a bottle 25 in the conventional manner and is preferably made from a recyclable plastic material. The 5 screw cap 2 is constructed in a stepped cylindrical manner with two or more cylindrical sections. The bottom cylindrical section 12 contains the screw thread 15 and is dimensioned to correspond with the bottle. The top cylindrical section 14 is of a smaller diameter. The screw 10 cap also includes a central pillar 3 which sits within the neck of the bottle and which is formed integrally with the screw cap. The pillar 3 is attached to the bottom 16 of the top cylindrical section either by spokes or by a disc with cut out portions 24. The pillar 3 extends above and 15 below the attachment point 16 and its circumference is dimensioned to correspond with the inner circumference of an aperture 7 through the closure member and it extends to a distance above the attachment point which allows it to fully close the aperture 7 when the closure member 21 is in 20 the closed position. The closure member 21 is slidably movable between a closed and an open position.

The main features of the closure member 21 are: a mouthpiece portion 11; a cylindrical section 17; and two or more leg sections 6. The mouthpiece portion 11 is at the 25 top of the closure member 21 and has an upper surface which is slightly curved in order to allow the top of the aperture to extend into the consumer's mouth when the consumer's lips are in contact with the mouthpiece. The aperture 7 is dimensioned to control the volume of liquid 30 which flows in a given time period. The mouthpiece portion also has a flange 10 which extends beyond the outer circumference of the top cylindrical section 14 of the screw cap member 2. The bottom surface of the flange 10 allows the consumer to grip the closure member 21 and 35 provides a surface area onto which force may be applied when moving the closure member 21 to the open position.

The mouth piece 11 is formed integrally with the

cylindrical section 17 which is dimensioned so that when the closure 21 member is in the closed position the flange 16 rests on top 18 of the screw cap member whilst the bottom of the cylindrical section rests on the spokes 24

5 which join the central pillar 3 to the rest of the screw cap. The cylindrical section 17 of the closure member 21 fits within the top cylindrical section 14 of the screw cap 2 and has a raised ridge area 9 designed to fit within a corresponding indentation 22 within the top cylindrical

10 section 14 of the screw cap. The ridge/indentation combination are provided to stop the lid member accidentally moving from the closed to open positions. The ridge/indentation combination are sized such that the lid member cannot move freely but can be easily moved by

15 application of force such as can reasonably be applied by hand.

Two or more legs 6, in this case two diametrically opposed legs, extend from the bottom of the cylindrical section through the cut out portions of the

20 disc 24 which attaches the central pillar 3 to the screw cap 2. The legs 6 have tapered shoulders 19 which restrict the travel of the lid member when it is opened and when the top surface of the shoulder contacts the underside of the top of the middle cylindrical section 20 of the screw cap member.

The blister pack 23 consists of a deformable dome 4 which has a frangible seal 5 as its base. The blister pack 23 is attached to the lower section of the legs 6 at a distance which allows the top of the dome of the blister

30 pack to reside just below the central pillar when the closure member is in the closed position. When the closure member is moved towards the open position the dome contacts the pillar and deforms inwardly which subsequently applies sufficient force on the tablet 8 to cause it to rupture the

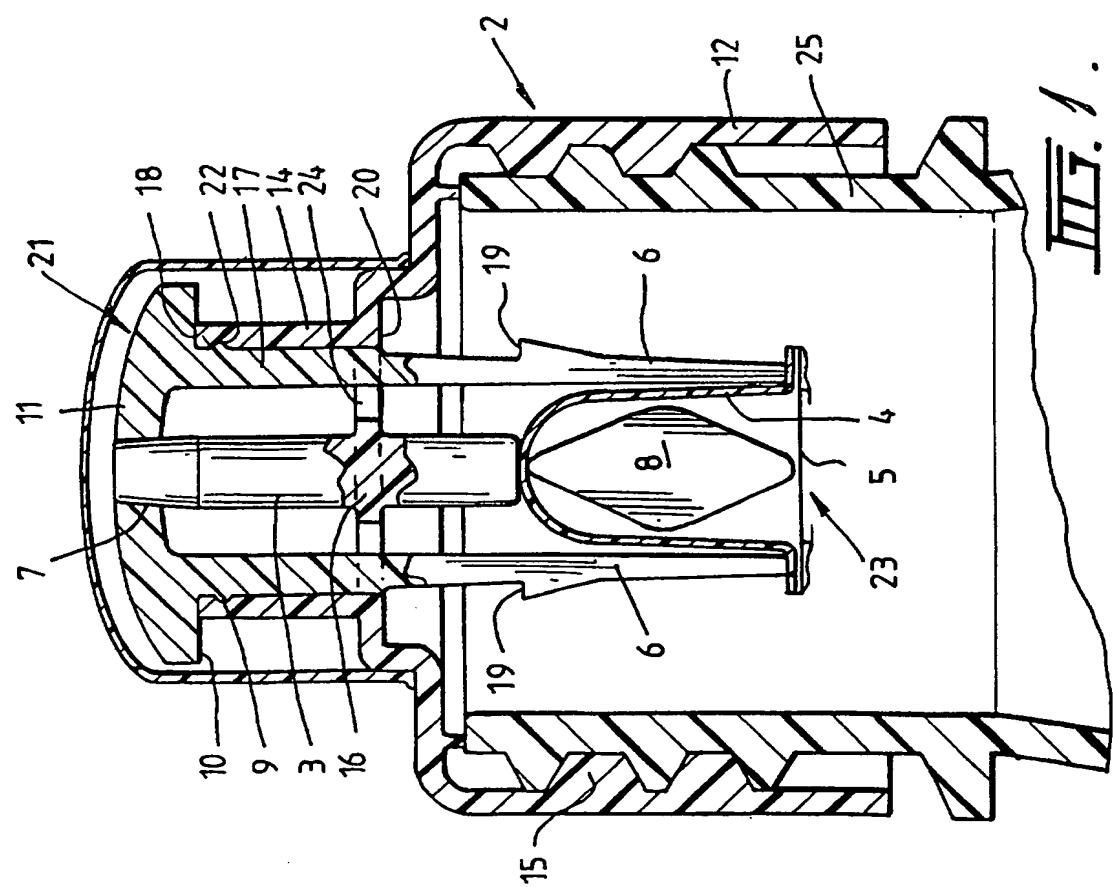
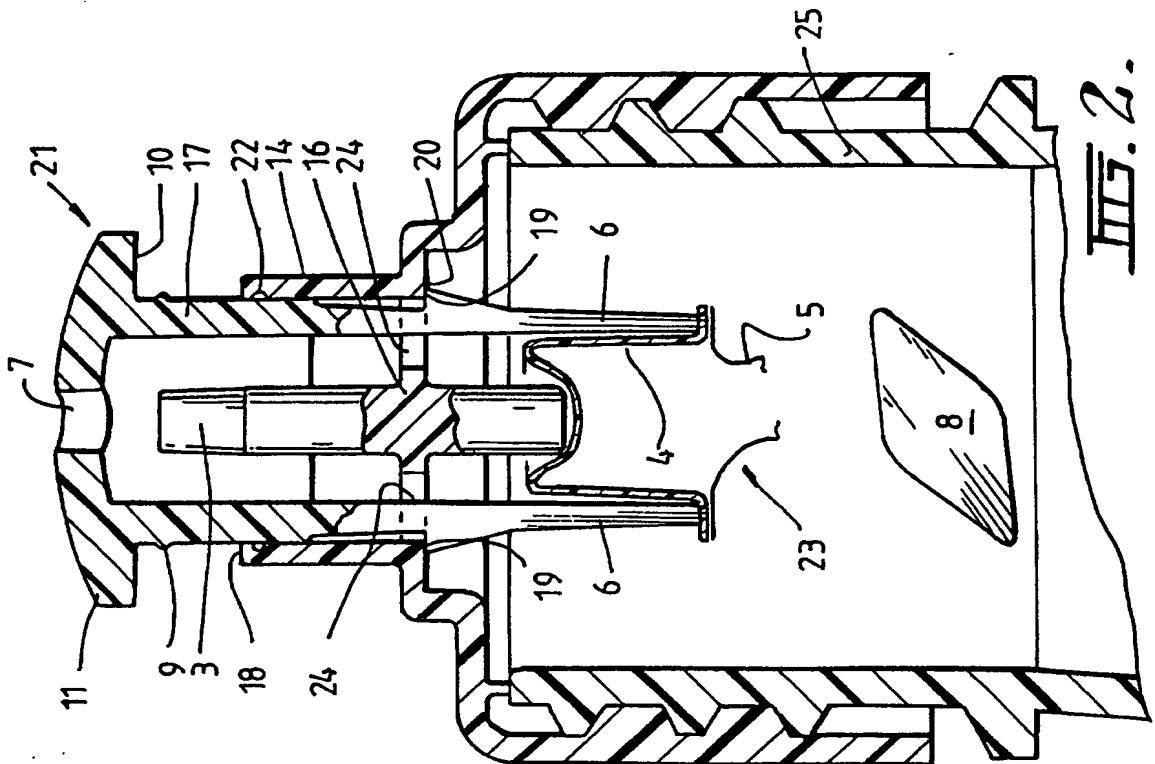
35 frangible seal 5 and to drop into the liquid contained in the bottle. To ensure that the blister pack 23 is effectively ruptured the distance which the closure member

21 travels from the closed to open positions must be considered in relation to the distance the legs 6 extend below the bottom of the pillar 3, the distance to which the pillar extends below the attachment point 16, and the size 5 of the blister pack.

## CLAIMS:

1. A closure cap having a compartment in which an additive is retained and adapted to be released into the liquid contents of an associated container simultaneously upon opening of the closure cap, whereafter the contents of the container may be dispensed either through the closure cap or after removal of the closure cap.
2. A closure cap as claimed in Claim 1, wherein said compartment is a blister pack which is ruptured upon opening of the closure cap to release the additive into the associated container.
3. A closure cap as claimed in Claim 1 or 2, wherein the closure cap has a closure means of the push-pull type, whereby when moved to an open position part of the closure means acts to release the additive into the associated container.
4. A closure cap as claimed in Claim 3, when dependent on Claim 2, wherein said blister pack is moved into engagement with said part of said closure means when said closure means is moved to the open position.
5. A closure cap substantially as hereinbefore described with reference to the accompanying drawings.
6. A closure cap as claimed in any one of the preceding claims in combination with a container.
7. The combination of a closure cap and a container as claimed in Claim 6, wherein the container is a bottle with a neck and said closure cap is screw-threaded onto the neck of said bottle.

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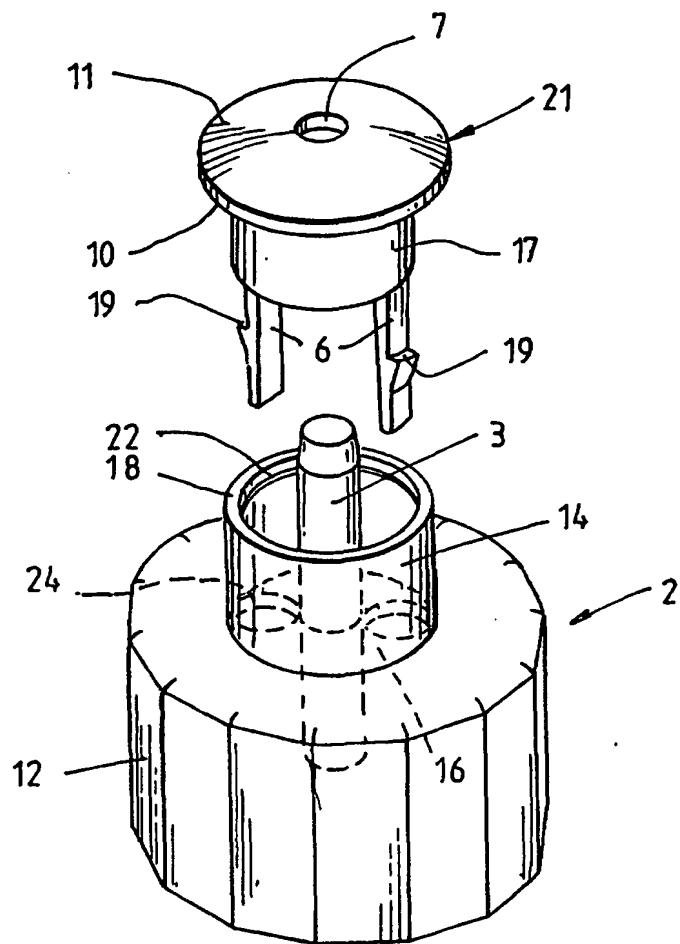
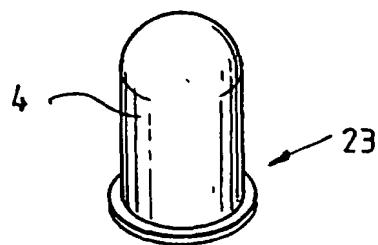


FIG. 3.



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